U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY AND COMMERCE

May 31, 2015

TO: Members, Subcommittee on Commerce, Manufacturing, and Trade

FROM: Committee Majority Staff

RE: Hearing entitled "An Update on the Takata Airbag Ruptures and Recalls"

I. INTRODUCTION

On Tuesday, June 2, 2015, at 2:00 p.m. in 2123 Rayburn House Office Building, the Subcommittee on Commerce, Manufacturing, and Trade will hold a hearing entitled "An Update on the Takata Airbag Ruptures and Recalls." This hearing will give members of the Subcommittee the opportunity to review the investigations surrounding the Takata airbag inflator defects and learn about the new and expanded recalls initiated over the past six months since the Subcommittee's December 2014 hearing on this issue. The hearing also will examine the investigations into the root cause of the inflator defects and the steps being taken to ensure driver safety while these investigations are ongoing.

II. WITNESSES

First Panel

- Mark Rosekind, Ph.D., Administrator, National Highway Traffic Safety Administration

Second Panel

- Kevin Kennedy, Executive Vice President, Takata
- David Kelly, Project Director, Independent Testing Coalition
- Mitch Bainwol, President and CEO, Alliance of Automobile Manufacturers
- John Bozzella, Chief Executive Officer, Global Automakers

III. BACKGROUND

A. Takata Airbag Inflator Defects

TK Holdings, Inc. ("Takata") has been producing airbags for vehicle manufacturers around the world since 1987.[1] In 2003, the first known Takata airbag inflator ruptured in Switzerland due to "an overloading of propellant in the assembly of the inflator."[2] Following that incident, six deaths, hundreds of injuries, and a series of recalls have been launched over the last

[1] See http://www.takata.com/en/about/history.html
[2] Defect Information Report, TK Holdings, Inc. PSDI, PSDI-4, and PSDI-4K Driver Airbag Inflators. May 18, 2015. Available at: http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM479198/INOT-EA15001-62001.PDF

10 years due to defective Takata airbag inflators, affecting 11 automakers.[3] In December, the Commerce, Manufacturing, and Trade Subcommittee held a hearing to examine the Takata airbag ruptures.[4] At that time, Takata separated the ruptures into two classes of inflators – the Alphas and the Betas.[5] The Alphas were defective inflators that experienced earlier ruptures that Takata was able to conclusively attribute to manufacturing errors or other handling mistakes.[6] The Betas were a newer class of inflators exhibiting ruptures in instances after extended residence in high absolute humidity areas; no root cause, however, has been identified for those events. This memorandum and the hearing will focus on the Beta class of ruptures.

On May 18, 2015, Takata submitted four Defect Information Reports to NHTSA identifying six airbag inflators as defective.[7] Three (PSDI, PSDI-4, and PSDI-4K) are used in driver side airbags in Honda, BMW, Chrysler, Ford, and Mazda vehicles.[8] The other three (SPI, PSPI-L, and PSPI) are used in passenger side airbags in Chrysler, Daimler, Ford, GM, Mitsubishi, Nissan, Subaru, and Toyota vehicles.[9] The average age of these inflators ranges from 8 to 11.5 years.[10]

According to Takata's Defect Information Reports, NHTSA's recall covers approximately 17.6 million driver's side inflators installed in vehicles in the U.S., including an estimated 4.7 million PSDI inflators and 12.9 million PSDI-4 and PSDI-4K inflators.[11] The nationwide recall also covers 7.7 million SPI passenger side inflators.[12] The PSPI and PSPI-L passenger side inflators were recalled from high absolute humidity states including Florida, Puerto Rico, the U.S. Virgin Islands, Hawaii, the outlying U.S. territories, Texas, Louisiana, Georgia, South Carolina, Alabama, and Mississippi.[13] It is believed that these numbers include some inflators that have already been recalled.[14] Takata has agreed to conduct further testing and engineering analysis on these inflators and, depending on those results, NHTSA may issue orders to expand the recall for PSPI and PSPI-L by three additional geographic zones, addressing zones with the next highest absolute humidity first.[15]

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[3] NHTSA Press Release, Department of Transportation announces steps to address Takata airbag defects. May 19, 2015. Available at: http://www.nhtsa.gov/About+NHTSA/Press+Releases/DOT-action-on-takata-air-bag-defects
[4] See http://energycommerce.house.gov/hearing/takata-airbag-ruptures-and-recalls
[5] Takata Representatives, Briefing to Committee Staff (November 13, 2014).
[6] *Id.*
[7] U.S. Department of Transportation, NHTSA. In re: EA15-001 Air Bag Inflator Rupture. May 18, 2015. Consent Order – Exhibit A. Defect Information Report, TK Holdings Inc. – PSDI, PSDI-4 and PSDI-4K Driver Air Bag Inflators. Defect Information Report, TK Holdings Inc. - SPI Passenger Air Bag Inflators. Defect Information Report, TK Holdings Inc. - PSPI-L Passenger Air Bag Inflators. Defect Information Report, TK Holdings Inc. – PSPI Passenger Air Bag Inflators. Available at: : http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM479198/INOT-EA15001-62001.PDF
[8] *Id.*
[9] *Id.*
[10] *Id.*
[11] *Id.*
[12] *Id.*
[13] *Id.*
[14] *Id.*
[15] *Id.*

Of the vehicles identified by Takata that contain defective inflators in this recall approximately 17 million are vehicles that were covered under previous recalls or safety improvement campaigns since 2008.[16] A considerable portion of those vehicles had not been fixed prior to NHTSA's May 19, 2015 recall announcement.[17] Automakers have reported completion rates ranging between 15 percent and 35 percent for the earlier recalls.[18] Currently, automakers are in the process of filing reports with NHTSA outlining the number of new vehicles, by make and model year, covered under this latest recall.

B. Takata Inflator Testing and Results

As part of Takata's efforts to find the root cause of the inflator defect, it has conducted ballistic testing, live dissections, propellant analysis, and other examinations on approximately 30,801 of the six inflators identified as defective from vehicles located in the United States.[19] A total of 265 inflators have ruptured during testing, and of those inflators which ruptured, all but five came from vehicles operating in States classified as high absolute humidity areas.[20] The five inflators that came from vehicles outside of those regions were from passenger side airbags and originated from Oregon, Pennsylvania, Illinois, and Kentucky.[21] The inflators from vehicles operating in Illinois and Kentucky have vehicle histories showing that they have been registered for several years in Florida and coastal Texas.[22]

During testing, the PSPI-L inflator experienced the highest percentage of ruptures at 2.16 percent.[23] The PSPI-L inflator was followed by the SPI at 0.9 percent, the PSPI at 0.51 percent, and the PSPI-4 and PSPI-4K at 0.0722 percent.[24] No ruptures were reported from the PSDI inflators during testing.[25] Takata believes that the shape of the propellant (known as "bat-wing" shaped propellant) is one of the main contributors to the defect in driver side inflators.[26] In SPI passenger inflators, Takata has identified a manufacturing issue as the likeliest cause of the defect.[27] Takata believes that high absolute humidity is likely causing the defect for PSPI and PSPI-L inflators.[28]

Takata continues to test inflators and investigate the root cause of the defect causing the ruptures. In 2010, Takata began consulting with Fraunhofer Institute for Chemical Technology

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[16] NHTSA Press Release. U.S. Transportation Secretary Foxx Announces Order to Preserve Defective Takata Airbag Inflators for Ongoing Federal Investigation. (February 25, 2015). See: http://www.nhtsa.gov/About+NHTSA/Press+Releases/2015/takata-ordered-to-preserve-defective-air-bag-inflators
[17] Briefings to Committee Staff with Automakers Affected by Takata Ruptures and Recalls (May 28, 2015).
[18] *Id.*
[19] Consent Order. Available at: : http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM479198/INOT-EA15001-62001.PDF
[20] *Id.*
[21] *Id.*
[22] *Id.*
[23] *Id.*
[24] *Id.*
[25] *Id.*
[26] Takata Briefing to Committee Staff (May 29, 2015).
[27] *Id.*
[28] *Id.*

("Fraunhofer"), a research organization within the pyrotechnic gas generator and airbag system industry, to provide an independent investigation into the root cause of the inflator ruptures.[29] Initial results from both Takata and Fraunhofer's investigation reveal a potential multi-factor root cause of the ruptures, which may contribute to the presence of a defect over the passage of time.[30] These results were shared with NHTSA in February.[31]

To remedy vehicles subject to the recall, Takata is producing replacement inflator parts for each of the identified defective inflators and has pledged to work with affected automakers to prioritize replacements to vehicles with older inflators and areas of high absolute humidity.[32] Some automakers have indicated that they have sufficient replacement parts from Takata to meet demand both in the high absolute humidity regions and nationally.[33] Others are consulting with different airbag suppliers to help meet demand or prioritizing the available replacement parts to high absolute humidity regions until more parts become available.[34] Takata is expecting to produce one million replacement kits per month by sometime this fall.[35] About 70 percent of those replacement kits include inflators made by other airbag suppliers for driver side inflators.[36] Of the six defective inflators, Takata intends to completely cease production of the PSDI-4 inflator used in driver side airbags, including for use as remedy parts, at some point in the near future. In the meantime, Takata is continuing to produce a small number of that inflator for use as remedy parts[37] until the one automaker using the inflator can transition to a differently designed inflator.[38]

C. NHTSA Investigation

On June 11, 2014, NHTSA's Office of Defects Investigation (ODI) launched a formal investigation into the Takata airbag inflator ruptures.[39] In 2009, ODI had launched an investigation into Takata airbag inflators but closed the investigation after six months due to "insufficient information."[40] ODI initiated this new investigation following reports of six inflator rupture incidents in consumer-driven vehicles produced by five different vehicle

[29] Consent Order. Available at: : http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM479198/INOT-EA15001-62001.PDF
[30] *Id.*
[31] Takata Briefing with Committee Staff (May 29, 2015).
[32] Consent Order. Available at: : http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM479198/INOT-EA15001-62001.PDF
[33] Briefings to Committee Staff with Automakers Affected by Takata Ruptures and Recalls (May 28, 2015).
[34] *Id.*
[35] Takata Briefing to Committee Staff (May 29, 2015)
[36] *Id.*
[37] Consent Order. Available at: : http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM479198/INOT-EA15001-62001.PDF
[38] Takata Briefing to Committee Staff (May 29, 2015)
[39] Department of Transportation, NHTSA. ODI Resume. Investigation PE 14-016, Airbag Inflator Rupture. ("Investigation PE 14-016"). See http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM474313/INCLA-PE14016-6853.PDF
[40] Department of Transportation, NHTSA. ODI Resume. Investigation RQ09-004, Rupturing Driver's Airbag Inflators. See http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/ACM13978206/INCLA-RQ09004-5021.pdf

manufacturers.[41] This investigation revealed that the six ruptures had occurred in vehicles operating in Florida and Puerto Rico.[42] It also revealed that five additional vehicle manufacturers used similarly designed Takata inflators as those that experienced rupture incidents in the field.[43] To address this potential safety defect, ODI requested that all 10 vehicle manufacturers (BMW, Chrysler, Ford, GM, Honda, Mazda, Mitsubishi, Nissan, Subaru, and Toyota) conduct a regional recall for vehicles equipped with passenger and driver side Takata airbag inflators in areas of consistently high absolute humidity, including Florida, Puerto Rico, Hawaii, and the U.S. Virgin Islands.[44]

In this regional recall action, inflators were removed from remedied vehicles and returned to Takata for testing.[45] Takata's tests on the passenger inflators demonstrated a higher rupture frequency for inflators returned from Florida than anticipated.[46] As a result, ODI requested that all 10 vehicle manufacturers expand their recalls for passenger inflators to cover other geographic areas where high absolute humidity conditions exist, including additional Gulf States and other coastal areas.[47]

ODI also requested that five of the vehicle manufacturers using Takata driver side airbags expand the existing regional recall action to a nationwide recall.[48] ODI made this request after four driver airbag inflator ruptures were reported in the field in vehicles operating outside of the identified high absolute humidity region.[49] While Takata maintained that the current information available did not "support a nationwide determination of a safety defect in 'vehicles equipped with the subject driver-side inflators,'"[50] all vehicle manufacturers, including BMW, Chrysler, Ford, Honda, and Mazda, complied with ODI's request by December.[51]

In addition to requesting recalls, ODI issued a General Order requiring each automaker to file a report detailing information related to the testing of Takata inflators outside of the current regional recall areas.[52] ODI took this action to aid its ongoing investigation and to determine

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[41] *Id.*
[42] Investigation PE 14-016. See http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM474313/INCLA-PE14016-6853.PDF
[43] *Id.*
[44] *Id.*
[45] *Id.*
[46] *Id.*
[47] *Id.*
[48] *Id.*
[49] *Id.* See also NHTSA Press Release. USDOT Calls for National Recall of Defective Takata Driver Side Airbags. ("NHTSA Press Release") Available at: http://www.nhtsa.gov/About+NHTSA/Press+Releases/2014/DOT-calls-for-national-recall-of-takata-driver-air-bags
[50] Letter from Mike Rains, Director of Product Safety, TK Holdings Inc., to Frank S. Borris II, Director, Office of Defects Investigation, NHTSA. (December 2, 2014) Available at: http://www.autosafety.org/sites/default/files/imce_staff_uploads/Takata%27s%20Dec%20%202%20response%20to%20NHTSA%27s%20Nov%20%2026%20RRL.pdf
[51] See http://www.reuters.com/article/2014/12/22/us-autos-takata-bmw-idUSKBN0K01WO20141222
[52] NHTSA Press Release. Available at: http://www.nhtsa.gov/About+NHTSA/Press+Releases/2014/DOT-calls-for-national-recall-of-takata-driver-air-bags

what Takata and the affected industry were doing to control and mitigate the risk associated with the defective inflators.[53]

ODI also issued two Special Orders to Takata – one on October 30 and another on November 18. The October 30 Special Order required that Takata provide NHTSA with information related the production and manufacturing of inflators.[54] It also requested information about Takata's testing methods on defective inflators as well as information about how Takata investigates the existence of a safety-related defect in motor vehicle equipment it manufactures.[55] The November 18 Special Order required that Takata provide information to NHTSA related specifically to the chemical composition of the propellant formula used in the airbag inflators.[56]

On February 20, 2015, NHTSA imposed a civil penalty of $14,000 per day against Takata for failure to meet certain obligations required under the October 30 and November 18, 2014 Special Orders.[57] Both orders required Takata to submit an explanation for documents that "would not, standing alone, be self-explanatory."[58] NHTSA charged that Takata failed to do this in its submission of 2.4 million documents and neglected to provide an explanation in subsequent meetings with the agency.[59]

On February 24, 2015, NHTSA updated its preliminary investigation to an "Engineering Evaluation," allowing the agency to expand its information gathering and analysis efforts on all manufacturers and vehicles known to be affected by the defective inflators.[60] NHTSA has pledged to focus on "root cause analysis, other potential defect consequences, identification of affected vehicles scope, and adequacy of the remedy" in this stage of the investigation.[61]

On February 25, 2015, Takata agreed to a Preservation Order imposed by NHTSA, which requires Takata to preserve certain information related to the inspection, testing, and analysis of returned or recalled inflators.[62] In addition to making inflator testing and analysis data available to NHTSA, the Preservation Order requires Takata to secure and preserve recalled or returned inflators from a diverse set of vehicles by make, model, and model year for future inspection by

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[53] *Id.*
[54] U.S. Department of Transportation, NHTSA. Special Order Directed to TK Holdings, INC. In re: PE14-016. Air Bag Inflator Rupture. (October 30, 2014).
[55] *Id.*
[56] U.S. Department of Transportation, NHTSA. Second Special Order Directed to TK Holdings, INC. In re: PE14-016. Air Bag Inflator Rupture. (November 18, 2014).
[57] Letter from O. Kevin Vincent, Chief Counsel, NHTSA, to Stephen G. Bradbury, Dechert LLP. (February 20, 2015). Re: Failure to Fully Respond to Special Orders in NHTSA's Investigation in PE 14-016, Takata Airbag Inflator Rupture.
[58] *Id.*
[59] *Id.*
[60] U.S. Department of Transportation, NHTSA. Investigation EA15-001, Airbag Inflator Rupture. See http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM473942/INOA-EA15001-4970.PDF
[61] *Id.*
[62] NHTSA Press Release. U.S. Transportation Secretary Foxx Announces Order to Preserve Defective Takata Airbag Inflators for Ongoing Federal Investigation. (February 25, 2015). Available at: http://www.nhtsa.gov/About+NHTSA/Press+Releases/2015/takata-ordered-to-preserve-defective-air-bag-inflators

NHTSA, vehicle manufacturers, or private plaintiffs.[63] Takata also is required to submit a written protocol to NHTSA demonstrating how it will execute the requirements of the order.[64] That written protocol was issued in April.[65] The Preservation Order is intended to last throughout the duration of NHTSA's investigation into Takata and does not release Takata from civil or criminal liabilities.[66]

On May 18, 2015, Takata agreed to a Consent Order issued by NHTSA. In that Order, Takata finally acknowledged that a defect related to motor vehicle safety may arise in some of its airbag inflators.[67] The Consent Order requires Takata to formally submit Defect Information Reports to NHTSA, detailing the defect associated with each inflator and the proposed remedy.[68] The Consent Order also requires Takata's cooperation in all future regulatory actions and proceedings related to this investigation; it ends the $14,000 per day civil penalty NHTSA began imposing in February; and requires Takata's involvement in the organization, and coordination of recalls and remedy programs related to the inflator defect.[69]

To address the complexity and volume of vehicles covered under the May 19, 2015 recall, NHTSA filed a notice of intent to open a coordinated remedy program for the replacement of defective Takata airbag inflators.[70] This is the first time NHTSA has conducted a coordinated remedy program to address a motor vehicle safety defect. The notice of intent was published in the Federal Register on May 22, 2015, and outlines NHTSA's plans to implement this coordinated remedy program including the prioritization of repairs to certain geographic regions and manufacturers of affected vehicles. NHTSA has determined that the remedy programs proposed by manufacturers will not likely be completed in a reasonable time and initiated a coordinated remedy approach to accelerate the replacement of defective inflators.[71] Additional information about how the coordinated remedy program will be conducted, as well as how to submit comments, will be provided in a supplemental Federal Register Notice.[72]

D. Independent Testing Coalition

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[63] *Id.*
[64] *Id.*
[65] Protocol Under NHTSA Preservation Order. Available at: http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM477398/INOT-EA15001-1909.pdf
[66] U.S. Department of Transportation, NHTSA. Preservation Order and Testing Control Plan. In re: PE 14-016, Airbag Inflator Rupture. (February 25, 2015). Available at: http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM477397/INOT-EA15001-1908.pdf
[67] U.S. Department of Transportation, NHTSA. Consent Order. In re: EA 15-001 Airbag Inflator Rupture (May 18, 2015) Available at: http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM479198/INOT-EA15001-62001.PDF
[68] *Id.*
[69] *Id.*
[70] Department of Transportation, NHTSA. Notice of Intent to Open a Coordinated Remedy Program Proceeding for the Replacement of Certain Takata Air Bag Inflators. (May 22, 2015). Federal Register Vol. 80, No.99, Notices. Available at: http://www.gpo.gov/fdsys/pkg/FR-2015-05-22/pdf/2015-12449.pdf
[71] *Id.*
[72] *Id.*

On December 2, 2014, Toyota requested that auto manufacturers affected by the Takata airbag ruptures and recalls join an independent investigative effort into the Takata inflator defects.[73] Toyota was joined by nine other auto manufacturers, including BMW, Fiat Chrysler, Ford, GM, Honda, Mazda, Mitsubishi, Nissan, and Subaru. Former NHTSA Acting Administrator David Kelly was selected in February to serve as the project director for this auto-led investigation. Orbital ATK, an engineering firm with expertise in aerospace and defense technologies, was also selected in February by the auto coalition to research the airbag failures to identify a root cause of the ruptures and to determine whether the replacement inflators will face the same problem in the future.[74] Orbital ATK is currently in the process of collecting defective Takata inflator parts for testing.[75]

Attached to this memorandum please find a timeline outlining the sequence of events associated with the Takata airbag inflator defects. Also attached is a list of motor vehicle safety recalls in the U.S. attributed to the defective inflators. Recall reports are still being filed by auto manufacturers in response to Takata's May defect filings.

IV. ISSUES

The following issues may be examined at the hearing:

- Have Takata and NHTSA directed sufficient resources to addressing these airbag problems and have timely decisions been made to best protect consumers?
- What additional information has been learned from inflator testing over the last six months that wasn't previously known to warrant a nationwide recall of passenger and driver side airbag inflators?
- How are the replacement inflators different such that they won't suffer the same defect over the next several years?
- How long will it take to remedy all affected vehicles?
- How did NHTSA coordinate with affected auto manufacturers in launching the latest recall?
- What are the lessons learned from these Takata airbag recalls that can be applied to new safety technologies being deployed in vehicles across the fleet today?

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[73] Toyota News Release. "Toyota Seeks Independent, Industry-Wide Joint Testing Initiative for Takata Airbag Inflators." December 2, 2014. Available at: http://corporatenews.pressroom.toyota.com/releases/toyota+independent+industry-wide+testing+takata+airbags.htm

[74] Business Wire News Release. "Automakers Select Orbital ATK to Lead Independent Review of Takata Airbag Inflators." February 26, 2015. Available at: http://www.businesswire.com/news/home/20150226006056/en/Automakers-Select-Orbital-ATK-Lead-Independent-Review#.VWeIWc9VhHw

[75] Independent Testing Coalition representative. Briefing to Committee Staff (May 22, 2015).

V. STAFF CONTACTS

If you have any questions regarding this hearing, please contact Paul Nagle and Olivia Trusty of the Committee staff at (202) 225-2927.